What Is Claimed Is:

1. A method of determining the presence of a nuclear localization signal in a protein of interest, the method comprising:

selecting a host cell for use in the method, wherein the host cell contains a nucleus having nucleic acid encoding a reporter gene therein and wherein the host cell has a first level of expression of the reporter gene;

identifying a DNA binding domain and an activation domain for the reporter gene;

constructing a chimeric nucleic acid encoding a fusion protein comprising the DNA binding domain, the activation domain, and a protein of interest, wherein elements of the fusion protein other than the protein of interest have no nuclear localization signals;

introducing the chimeric nucleic acid into the host cell; and

determining a second level of expression of the reporter gene to determine the presence of a nuclear localization signal in the protein of interest.

2. The method of claim 1 wherein the host cell is a eukaryotic cell.

3. The method of claim 1 wherein the host cell is a yeast cell.

4. The method of claim 1 wherein the reporter gene is a lacZ gene.

5. The method of claim 1 wherein the reporter gene is a selection marker gene.

6. The method of claim 5 wherein the selection marker gene is a HIS3 gene.

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7. The method of claim 4 or 6 wherein the DNA binding domain is a LexA protein.

8. The method of claim 4 or 6 wherein the activation domain is a GAL4 activation domain.

9. The method of claim 1 wherein the chimeric nucleic acid further comprises nucleic acid encoding a promoter to control expression of the fusion protein.

10. The method of claim 9 wherein the promoter is an ADH1 promoter.

11. A recombinant host cell comprising:

a nucleus having nucleic acid encoding a reporter gene therein; and

a chimeric nucleic acid encoding a fusion protein, the fusion protein comprising a DNA binding domain for the reporter gene, an activation domain for the reporter gene, and a protein of interest, wherein elements of the fusion protein other than the protein of interest have no nuclear localization signals.

12. The recombinant host cell of claim 11 wherein the host cell is a eukaryotic cell.

13. The recombinant host cell of claim 11 wherein the host cell is a yeast cell.

14. The recombinant host cell of claim 11 wherein the reporter gene is a lacZ gene.

15. The recombinant host cell of claim 11 wherein the reporter gene is a selection marker gene.

16. The recombinant host cell of claim 15 wherein the selection marker gene is a HIS3 gene.

17. The recombinant host cell of claim 14 or 16 wherein the DNA binding domain is a LexA protein.

18. The recombinant host cell of claim 14 or 16 wherein the activation domain is a GAL4 activation domain.

19. The recombinant host cell of claim 11 wherein the chimeric nucleic acid further comprises nucleic acid encoding a promoter to control expression of the fusion protein.

20. The recombinant host cell of claim 19 wherein the promoter is an ADH1 promoter.

21. A chimeric nucleic acid encoding a fusion protein, the fusion protein comprising a DNA binding domain for a reporter gene, an activation domain for the reporter gene, and a protein of interest, wherein elements of the fusion protein other than the protein of interest have no nuclear localization signals.

22. The chimeric nucleic acid of claim 21 wherein the reporter gene is a lacZ gene.

23. The chimeric nucleic acid of claim 21 wherein the reporter gene is a selection marker gene.

24. The chimeric nucleic acid of claim 23 wherein the selection marker gene is a HIS3 gene.

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25. The chimeric nucleic acid of claim 22 or 24 wherein the DNA binding domain is a LexA protein.

26. The chimeric nucleic acid of claim 22 or 24 wherein the activation domain is a GAL4 activation domain.

27. The chimeric nucleic acid of claim 21 further comprising nucleic acid encoding a promoter to control expression of the fusion protein.

28. The chimeric nucleic acid of claim 27 wherein the promoter is an ADH1 promoter.

29. A vector comprising the chimeric nucleic acid of claim 21.

30. A kit comprising the vector of claim 29.

31. The kit of claim 30 further comprising host cells which contain a nucleus having nucleic acid encoding the reporter gene therein.

32. The kit of claim 31 further comprising a control vector.

33. A nucleic acid molecule encoding a modified LexA protein, wherein the modified LexA protein has no nuclear localization signal.

34. The nucleic acid molecule of claim 33 wherein the nucleic acid molecule has a nucleotide sequence as shown in SEQ ID NO:1.

35. The nucleic acid molecule of claim 33 wherein the nucleic acid molecule encodes an amino acid sequence as shown in SEQ ID NO:2.

36. A modified LexA protein, wherein the modified LexA protein has no nuclear localization signal.

37. The modified LexA protein of claim 36 wherein the protein has an amino acid sequence as shown in SEQ ID NO:2.

38. A method of determining the presence of a nuclear export signal in a protein of interest, the method comprising:

selecting host cells for use in the method, wherein each of the host cells contain a nucleus having nucleic acid encoding a reporter gene therein;

identifying a DNA binding domain and an activation domain for the reporter gene;

constructing a chimeric nucleic acid encoding a fusion protein comprising the DNA binding domain, the activation domain, and a nuclear localization signal, wherein elements of the fusion protein have no nuclear export signals;

introducing the chimeric nucleic acid into one of the host cells;

determining a first level of expression of the reporter gene;

constructing a second chimeric nucleic acid encoding a second fusion protein comprising the DNA binding domain, the activation domain, the nuclear localization signal, and a protein of interest;

introducing the second chimeric nucleic acid into another one of the host cells; and

determining a second level of expression of the reporter gene to determine the presence of a nuclear export signal in the protein of interest.

39. The method of claim 38 wherein the host cells are eukaryotic cells.

40. The method of claim 38 wherein the host cells are yeast cells.

41. The method of claim 38 wherein the reporter gene is a lacZ gene.

42. The method of claim 38 wherein the reporter gene is a selection marker gene.

43. The method of claim 42 wherein the selection marker gene is a HIS3 gene.

44. The method of claim 38 wherein the nuclear localization signal is an SV40 nuclear localization signal.

45. The method of claim 41 or 43 wherein the DNA binding domain is a LexA protein.

46. The method of claim 41 or 43 wherein the DNA binding domain and the nuclear localization signal are a LexA protein.

47. The method of claim 41 or 43 wherein the activation domain is a GAL4 activation domain.

48. The method of claim 38 wherein the chimeric nucleic acid further comprises nucleic acid encoding a promoter to control expression of the fusion protein.

49. The method of claim 38 wherein the second chimeric nucleic acid further comprises nucleic acid encoding a promoter to control expression of the second fusion protein.

50. The method of claim 48 or 49 wherein the promoter is an ADH1 promoter.

51. A recombinant host cell comprising:

a nucleus having nucleic acid encoding a reporter gene therein; and

a chimeric nucleic acid encoding a fusion protein, the fusion protein comprising a DNA binding domain for the reporter gene, an activation domain for the reporter gene, and a nuclear localization signal, wherein elements of the fusion protein have no nuclear export signals.

52. The recombinant host cell of claim 51 wherein the fusion protein further comprises a protein of interest.

53. The recombinant host cell of claim 51 wherein the host cell is a eukaryotic cell.

54. The recombinant host cell of claim 51 wherein the host cell is a yeast cell.

55. The recombinant host cell of claim 51 wherein the reporter gene is a lacZ gene.

56. The recombinant host cell of claim 51 wherein the reporter gene is a selection marker gene.

57. The recombinant host cell of claim 56 wherein the selection marker gene is a HIS3 gene.

58. The recombinant host cell of claim 51 wherein the nuclear localization signal is an SV40 nuclear localization signal.

59. The recombinant host cell of claim 55 or 57 wherein the DNA binding domain is a LexA protein.

60. The recombinant host cell of claim 55 or 57 wherein the DNA binding domain and the nuclear localization signal are a LexA protein.

61. The recombinant host cell of claim 55 or 57 wherein the activation domain is a GAL4 activation domain.

62. The recombinant host cell of claim 51 wherein the chimeric nucleic acid further comprises nucleic acid encoding a promoter to control expression of the fusion protein.

63. The recombinant host cell of claim 62 wherein the promoter is an ADH1 promoter.

64. A chimeric nucleic acid encoding a fusion protein, the fusion protein comprising a DNA binding domain for a reporter gene, an activation domain for the reporter gene, and a nuclear localization signal, wherein elements of the fusion protein have no nuclear export signals.

65. The chimeric nucleic acid of claim 64 wherein the fusion protein further comprises a protein of interest.

66. The chimeric nucleic acid of claim 64 wherein the nuclear localization signal is an SV40 nuclear localization signal.

67. The chimeric nucleic acid of claim 64 wherein the DNA binding domain is a LexA protein.

68. The chimeric nucleic acid of claim 64 wherein the DNA binding domain and the nuclear localization signal are a LexA protein.

69. The chimeric nucleic acid of claim 64 wherein the activation domain is a GAL4 activation domain.

70. The chimeric nucleic acid of claim 64 wherein the chimeric nucleic acid further comprises nucleic acid encoding a promoter to control expression of the fusion protein.

71. The chimeric nucleic acid of claim 70 wherein the promoter is an ADH1 promoter.

72. A vector comprising the chimeric nucleic acid of claim 64.

73. A kit comprising the vector of claim 72.

74. The kit of claim 73 further comprising host cells which contain a nucleus having nucleic acid encoding the reporter gene therein.

75. The kit of claim 74 wherein the reporter gene is a lacZ gene.

76. The kit of claim 74 wherein the reporter gene is a selection marker gene.

77. The kit of claim 76 wherein the selection marker gene is a HIS3 gene.

78. The kit of claim 73 further comprising a control vector.